

ABSTRACT OF THE DISCLOSURE

It is an object of the invention to provide a sensorless control apparatus of an AC motor which can carry out a stable control within all driving ranges including a region having a zero speed and a zero output frequency.

The invention includes a high frequency generator (110) for superposing a high frequency signal on an estimated magnetic flux axis, a high frequency component extractor (130) for extracting an error signal of a magnetic flux position from a voltage or current detection signal having the same frequency component as a frequency component of the high frequency signal, a magnetic flux observer (120) for estimating a magnitude and a position of a magnetic flux, a first adaptive regulator for adaptively regulating an error signal on a high frequency superposing side, a second adaptive regulator for adaptively regulating an error signal on a magnetic flux observer side, a hybrid device (140) for switching the first adaptive regulator at a very low speed, the first and second adaptive regulators at a low speed and the second adaptive regulator at a high speed depending on the speed, and a speed estimator (150) for estimating a speed from an output of the hybrid device.